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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,612	11/29/2001	Thomas W. Lanzatella	1557.003US1	7395

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EXAMINER

TRUONG, LECHI

ART UNIT PAPER NUMBER

2194

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/997,612

Applicant(s)

LANZATELLA ET AL.

Examiner

LeChi Truong

Art Unit

2194

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 25-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

  
WILLIAM THOMSON  
SUPERVISORY PATENT EXAMINER

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Claims 25-44 are presented for the examination.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims **25-26, 30-32, 33, 37-39, 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US. Patent (6,564,219 B1) in view of in view of Amatsu et al (US. Patent 5,471,615).

**As to claim 25**, Lee teaches the invention substantially as claimed including: a storage object (a storage device, col 3, ln 27-29), physical object storage (physical space, col 12, ln 35-40/ fig.3), a first map (mapping, col 3, ln 42-44/ mapping, col 12, ln 35-40), a portion of the data of the storage object (blocks of data, col 8, ln 29-35/ col 8, ln 65-67 to col 9, ln 1-4), a first mapping indicates the first physical storage location at which at least a portion of the data of the storage object , col 8, ln 29-35/ col 8, ln 65-67 to col 9, ln 1-4/ col 12, ln 35-40), obtaining at the first storage environment , a configuration identifier associated with the storage object( col 9, ln 5-12/ ln 13-18), generating, from the first storage environment, a request to access the at least a portion of the data of the storage object, wherein the request includes the configuration identifier( col 13, ln 32-37/ ln 49-56/ ln 62-67), in response to said request to access, receiving a

Art Unit: 2194

notification at the first storage environment of a change of location of the at least a portion of the data if the physical storage location of the at least a portion of the data has changed( col 16, ln 20-25), indicate ( bitmap, col 18, ln 25-30), in response to said request to access, receiving a notification , generating a new mapping at the first storage environment, wherein the new mapping indicate that the at least a portion of the data is located at a second physical storage ( col 17, ln 45-50/ col 18, ln 23-30/ ln 50-57), new mapping( the change information at the physical can be mapped to the logical level, col 17, ln 45-50 ), accessing from the first storage environment, the at least a portion of the data at the second physical storage location( col 18, ln 58-63 ).

Lee does not explicitly teach the term a storage object housed in first storage environment, the second storage environment. However, Amutsu teaches the storage object housed in a first storage environment (MVS has a horizontal file system whereas UNIX file has tree-like system, col 2, ln 30 –37).

10. It would have been obvious to one of the ordinary skill in the art at the time the invention was made to combine the teaching Lee and Amatsu because Amatsu's the storage object housed in a first storage environment, the second storage environment would increase the efficiency of Amatsu's system by allowing files must be accessible to both operating systems.

**As to claim 26**, Lee teaches obtaining at the first storage environment, a new configuration identifier (col 24, ln 18-25), a new configuration identifier if the physical storage location of the at least a portion of the data has changed (col 9, l 49-48/ col 10, ln 37-42/ col 12, ln 1-5).

**As to claim 30**, Lee teaches a unique handle identify the storage object ... resolving a naming convention conflict (col 9, ln 5-12).

**As to claim 31**, Lee teaches the API (change API and mapping API, col 11, ln 20-23 and col 12, ln 30-35). Library API is well known in the art.

**As to claim 32**, it is an apparatus claim of claims 1 and 31; therefore, it is rejected for the same reasons as claims 1 and 31 above. Lee teaches processor, memory (col 1, ln 20-25).

**As to claims 33, 37, 38, 39, 44**, they are apparatus claims of claims 26, 30, 1, 32; therefore, they are rejected for the same reasons as claims 26, 30, 1, 32 above.

3. Claims **27, 28, 34, 35, 40, 41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US. Patent (6,564,219 B1) in view of in view of Amatsu et al (US. Patent 5,471,615) and further in view of Ofek et al (US. 6,385,706 B1).

**As to claim 27**, Lee and Amatsu do not teach a mapping of the replica to physical storage. However, Ofek teaches a mapping of the replica to physical storage (A map of the data blocks of the copy of the logical object to the physical blocks of the primary storage device is created. The data blocks are copied to the physical based on the map, col 1, ln 22-27).

10. It would have been obvious to one of the ordinary skill in the art at the time the invention was made to combine the teaching Lee, Amatsu and Ofek because Ofek's a mapping of the replica to physical storage would improve the efficiency of Lee and Amatsu's systems by allowing a single virtual volume is stored on the fourth physical device without any redundancy information.

As to claim 28, Ofek teaches a file system (col 2, ln 55-60) and Amatsu teaches a first operating system and second operating system (MVS has a horizontal file system whereas UNIX file has tree-like system, col 2, ln 30 -37).

As to claims 34, 35, 40 and 41, they are apparatus claims of claims 34 and 35; therefore, they are rejected for the same reasons as claims 27 and 28 above.

***Allowable Subject Matter***

4. Claims 29, 36, 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LeChi Truong whose telephone number is ( 571) 272 3767. The examiner can normally be reached on 8 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomson, William can be reached on (571) 272 3718. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIP. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 2194

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIP system, contact the Electronic Business Center (EBC) at 866-217-9197(toll-free).

LeChi Truong

December 27, 2005

A handwritten signature in black ink, appearing to read 'W. Thomson', with a long horizontal flourish extending to the right.

**WILLIAM THOMSON  
SUPERVISORY PATENT EXAMINER**